CLAIMS

1. An electronically-active vehicle gear-shift knob comprising:

A. a hand-grasping section having an upper edge, a front surface, a rear surface, and a lower edge having means for being attached to a vehicle gear-shift lever,

B. an electronics enclosure having a front edge, a rear edge, an upper surface, and a lower surface having means for being releasably attached to the upper edge of said hand-grasping section,

C. an electronics control circuit comprising:

a) a transmitting circuit enclosed within said electronics enclosure and comprising:

(1) an encoder comprising:

(a) an input consisting of a plurality of code-setting switches that are set to produce a unique address code,

(b) an oscillator circuit that produces a fixed clock frequency,

(c) a set of element-selecting switches, wherein the closing of any one of the switches produces an encoded signal that is unique to the closed

switch, wherein the encoded signal consists of a serial digital code along with a unique address code as determined by the settings of the code-setting switches, wherein the encoded signal is further modulated by the fixed clock frequency produced by the oscillator circuit to allow the encoder to produce a unique digital output signal,

(2) a transmitter module having means for receiving and processing the unique digital output signal and producing a corresponding RF output signal that is radiated through a transmitting antenna embedded within said electronics enclosure,

(3) a transmitting circuit power source,

b) a receiving circuit comprising:

(1) a receiver module having means for receiving and processing, via a receiving antenna, the radiated RF output signal from the transmitter module and producing a serial digital output signal,

(2) a microcontroller having means for receiving and processing the serial digital output signal and

producing an output control signal that is determined by which of the element-selecting switches located on said transmitting circuit is closed, wherein each of the output control signals is connected to a specific element of a vehicle, wherein when a first element-selecting switch is closed, the element controlled by the first switch is energized; conversely, when the first switch is pressed again the vehicle element is de-energized,

(3) an oscillator circuit that produces a fixed clock frequency, and

(4) a receiving circuit power source.

2. The gear-shift knob as specified in claim 1 wherein the front surface of said hand-grasping section further comprises a set of finger-gripping indentations.

3. The gear-shift knob as specified in claim 2 wherein said means for attaching the vehicle gear-shift knob to the vehicle gear-shift lever comprises:

a) the lower edge of said hand-grasping section further comprising a downward-extending sleeve having a lower, external threaded section having a set of perpendicular threaded bores into which is threaded a like set of set screws that impinge upon and secure the vehicle

gear-shift level, and

b) a housing having an upper edge and a set of internal threads dimensioned to thread into the lower, external threaded section on the downward-extending sleeve, wherein when the housing is fully threaded, the upper edge of said housing interfaces with the lower edge of said hand-grasping section.

4. The gear-shift knob as specified in claim 1 wherein said means for releasably attaching the lower surface of said electronics enclosure to the upper edge of said hand-grasping section comprises:

a) said hand-grasping section having adjacent the upper edge and the front surface an inward-extending lip, and adjacent the upper edge and the rear surface a downward-extending tab having a threaded bore, and

b) said electronics enclosure having adjacent the front edge and lower surface a forward-extending tab that engages the inward-extending lip on said hand-grasping section, and adjacent the rear edge and the lower surface is located a downward-extending rear tab having a tab bore that is in alignment with the threaded bore, wherein when the forward-extending tab and inward-extending lip are engaged and a threaded bolt is inserted through the downward-extending rear tab and threaded into the threaded bore, the electronics enclosure is securely attached to the hand-grasping section.

5. The gear-shift knob as specified in claim 1 wherein said set of element-selecting switches are comprised of four momentary-on pushbutton switches that operate independently of each other.

6. The gear-shift knob as specified in claim 5 wherein said set of four pushbutton switches are accessible via the upper surface of said electronics enclosure.

7. The gear-shift knob as specified in claim 6 wherein the upper surface of said electronic enclosure further comprises a transparent cover having a front edge and a rear edge, wherein the front edge is compressively hinged by a spring and the rear edge is normally held closed by means of a spring clip, wherein when the transparent cover is closed the four pushbutton switches cannot be accessed; conversely, when the spring clip is depressed, the transparent cover is released upward, thus allowing access to the four pushbutton switches.

8. The gear-shift knob as specified in claim 1 wherein said encoder is comprised of a Holtek HT-12E encoder.

9. The gear-shift knob as specified in claim 1 wherein said transmitting circuit power source is comprised of a d-c cell selected to provide the required power levels.

10. The gear-shift knob as specified in claim 9 wherein said d-c cell is comprised of an L1028 alkaline cell.

11. The gear-shift knob as specified in claim 1 wherein the receiving antenna is physically located to provide optimum signal receiving strength.

12. The gear-shift knob as specified in claim 11 wherein said microcontroller is comprised of a PIC microcontroller.

13. The gear-shift knob as specified in claim 12 wherein said PIC microcontroller is comprised of an automotive series PIC microcontroller that allows the microcontroller to be powered directly from a vehicle 12-volt d-c power source.

14. The gear-shift knob as specified in claim 13 wherein at least one of the four output control signals from said microcontroller is modified by connecting the output to a current limiting resistor placed in series with the base of an NPN transistor or a MOSFET, wherein the output of the transistor or MOSFET is a high-current control signal that enables the microcontroller to switch to a large current in order to operate a device such as a high-intensity lamp, a relay or a solenoid.

15. The gear-shift knob as specified in claim 14 wherein the output control signals from said microcontroller are connected in parallel with a corresponding set of LEDs located on a remotely-located vehicle element indicator, wherein when a particular pushbutton switch is closed, a particular LED corresponding to the vehicle element illuminates thus, a user of said gear-shift knob can visually determine which vehicle element has been activated.

16. The gear-shift knob as specified in claim 1 wherein said receiving circuit power source is selected to provide the required power levels.

17. An electronically-active vehicle gear-shift knob comprising:

a) a hand-grasping section having an upper edge and a lower edge, wherein the lower edge has means for being attached to a vehicle gear-shift lever,

b) an electronics enclosure having an upper surface and a lower surface, wherein the lower surface has means for being releasably attached to the upper edge of said hand-grasping section,

c) an electronics control circuit comprising:

(1) a transmitting circuit enclosed within said electronic enclosure, said transmitting circuit having means for selectively producing an RF output signal corresponding to a specific vehicle implement, and

(2) a vehicle-remote receiving circuit having means for receiving the RF output signal from said transmitting circuit and producing an output control signal that energizes the specific vehicle element.

18. The gear-shift knob as specified in claim 17 wherein the specific vehicle implement is selected by pressing on one of a set of momentary pushbutton switches that are accessible via the upper surface of said electronics enclosure.

19. The gear-shift knob as specified in claim 18 wherein the upper surface of said electronic enclosure further comprises a transparent cover having a front edge and a rear edge, wherein the front edge is compressively hinged by a spring and the rear edge is normally held closed by means of a spring clip, wherein when the transparent cover is closed, the four pushbutton switches cannot be accessed; conversely, when the spring clip is depressed, the transparent cover is released upward, thus allowing access to the four pushbutton switches.